IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:	)	Group Art Unit: 2614
David Clarence Mullen	)	Examiner: NGUYEN, KHAI N.
Serial No.: 10/813,509	)	Confirmation No.: 7396
Filed: March 29, 2004	)	
Atty. File No.: 4366-161	)	
For: "METHOD AND APPARATUS TO FORECAST THE AVAILABILITY OF A RESOURCE"	)	

CERTIFICATE OF TRANSMISSION

I HEREBY CERTIFY THAT THIS CORRESPONDENCE IS BEING TRANSMITTED VIA THE OFFICE ELECTRONIC FILING SYSTEM IN ACCORDANCE WITH 37 CFR §1.6(a)(4) ON April 13, 2010

SHERIDAN ROSS P.C.

BY: Leslie M. Frankel

Mail Stop Appeal Brief – Patents
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APPELLANT'S BRIEF ON APPEAL (37 CFR § 41.31)

Dear Sir:

This is an appeal under 37 CFR § 41.31 to the Board of Patent Appeals and Interferences of the United States Patent and Trademark Office from the final rejection of Claims 1-16 and 18-22 of the above-identified patent application. These claims were indicated as finally rejected in a final Office Action dated March 23, 2009, and the Notice of Panel Decision from Pre-Appeal Brief Review dated March 15, 2010, indicated that these Claims remained rejected. Payment in the amount of $540 for the fee required under 37 CFR § 41.20(b)(2) is being submitted herewith via EFS-Web. Although Appellants believe this fee amount is correct and that no other fees are required to be paid, please charge any deficiency or credit any overpayment to Deposit Account No. 19-1970.

The structure of the Brief is as follows in accordance with 37 CFR §41.37(c):

I. Real Party in Interest

II. Related Appeals and Interferences

III. Status of Claims

IV. Status of Amendments

V. Summary of Claimed Subject Matter

VI. Grounds of Rejection to be Reviewed on Appeal

VII. Argument

VIII. Claims Appendix

IX. Evidence Appendix- None

X. Related Proceedings Appendix- None

I. REAL PARTY IN INTEREST

Avaya Inc. is the owner of the patent application and the real party in interest.

II. RELATED APPEALS AND INTERFERENCES

There are no other prior or pending appeals, interferences or judicial proceedings related to this patent application.

III. STATUS OF CLAIMS

The status of the claims is as follows:

1. Claims canceled: 17 and 23.
2. Claims withdrawn from consideration but not canceled: None.
3. Claims pending: 1-16 and 18-22.
4. Claims allowed: None.
5. Claims rejected: 1-16 and 18-22.
6. Claims objected to: None.
7. Claims appealed: 1-16 and 18-22.

IV. STATUS OF AMENDMENTS

An Amendment and Response that was filed on December 17, 2008, has been entered. Appellants submitted an Amendment After Final on May 26, 2009, but that Amendment was not entered, on the grounds that the amendments raised new issues, and the Examiner also declined to enter those amendments for purposes of appeal. A Notice

of Panel Decision from Pre-Appeal Brief Review was mailed on March 15, 2010, indicating that there is at least one actual issue for appeal, and requiring the filing of an Appeal Brief within 30 days. In accordance with 37 C.F.R. §41.37(c)(2), this brief does not include any new or non-admitted amendment.

V. SUMMARY OF CLAIMED SUBJECT MATTER (37 CFR §41.37(c)(1)(v))

The claimed invention is generally directed to forecasting the future availability of a resource or agent for a new work assignment within a selected time horizon. (Specification, p. 4, ll. 9-17.) According to the claimed invention, a task is considered as being made up of at least first and second segments. (*Id.*) More particularly, the probability of completing the first segment of the task within the forecast horizon is determined, and the probability of completing the second segment of the task within the forecast horizon is determined. (*Id.*) The determined probability for the first segment is then combined with the determined probability of the second segment, and the result is normalized to obtain a probability of agent availability within the forecast horizon. (*Id.*)

One embodiment, which is the subject of independent Claim 1, is generally directed to a method for forecasting availability of a resource for a work assignment. The method includes:

selecting a forecast horizon (Specification, p. 8, ll. 14-19; p. 10, ll. 8-9);

determining for a first segment of a first task a first probability related to an availability of at least a first resource within said forecast horizon (Specification, p. 8, ln. 20 to p. 9, ln. 8), wherein said first resource comprises a first agent (Specification, p. 10, ll. 12-18);

determining for a second segment of said first task a second probability related to said availability of said at least a first resource within said forecast horizon, wherein said first and second probabilities are different from one another (Specification, p. 8, ln. 20 to p. 9, ln. 8; p. 10, ll. 12-22);

combining said determined first probability and said determined second probability (Specification, p. 9, ll. 9-19; p. 11, ll. 3-21);

normalizing a result of said combining said determined first and second probabilities to obtain a probability of agent availability within said selected forecast horizon (Specification, p. 11, ll. 9-13; p. 15, ll. 11-13; p. 16, ll. 12-14); and

applying said obtained probability of agent availability to assign work to a resource having a probability of agent availability that is within said selected forecast horizon (Specification, p. 4, ll. 18-22; p. 9, ln. 20 to p. 10, ln. 6; p. 12, ll. 17-22).

One embodiment, which is the subject of independent Claim 15, is generally directed to a method for forecasting arrivals of agents. The method includes:

selecting a forecast horizon (Specification, p. 8, ll. 14-19; p. 10, ll. 8-9);

forecasting using an automatic call distributor the number of agents associated with the automatic call distributor that are available within said selected horizon (Specification, p. 6, ln. 9 to p. 8, ln. 12), said forecasting including:

determining a probability of completion of talk state within the forecast horizon for each of a plurality of agents (Specification, p. 10, ll. 12-16);

determining a probability of completion of wrap-up state within the forecast horizon for each of said plurality of agents assuming each is at the start of wrap-up (Specification, p. 10, ll. 12-20);

for each of said plurality of agents, combining said determined probability of completion of talk state and said determined probability of completion of wrap-up state to obtain an agent arrival probability for each of said plurality of agents within said forecast horizon (Specification, p. 11, ll. 3-21);

combining said agent arrival probabilities for each of said plurality of agents to obtain a first forecast (Specification, p. 12, ln. 13 to p. 13, ln. 7); and

initiating an outbound call when said first forecast indicates an excess supply of agents (Specification, p. 5, ll. 9-20; p. 8, ll. 14-17; p. 10, ll. 3-6; p. 19, ll. 18-19).

One embodiment, which is the subject of independent Claim 20, is generally directed to a work distribution system. The system includes:

Means for predicting a time to a next work item requiring an agent. The means for predicting a time to a next work item requiring an agent are provided by an automatic call distributor (ACD) 104 and more particularly by a customer contact forecast function 122 and a predictive dialer 114. (Specification, p. 7, ll. 13-22.)

Means for accessing a first agent work segment statistic. The means for accessing a first agent work segment statistic are provided by an agent arrival prediction function 124 of the ACD 104. (Specification, p. 8, ll. 9-12 and ll. 20-23.)

Means for accessing a second agent work segment statistic. The means for accessing a second work segment statistic are provided by the agent arrival prediction function 124 of the ACD 104. (Specification, p. 8, ll. 9-12 and ll. 20-23.)

Means for determining a first probability of completing said first agent work segment within said predicted time at an elapsed time in said first work segment by applying at least said first agent work segment statistic. The means for determining a first probability are provided by the agent arrival prediction function 124. (Specification, p. 8, ll. 9-14; p. 9, ll. 9-19; p. 10, ll. 14-16.)

Means for determining a second probability of completing said second agent work segment within said predicted time at zero elapsed time in said second work segment by applying at least said second agent work segment statistic. The means for determining a second probability of completing said second agent work segment within said predicted time are provided by the agent arrival prediction function 124 of the ACD 104. (Specification, p. 8, ll. 9-12; p. 9, ll. 9-19; p. 10, ll. 18-20.)

Means for combining said first and second probabilities to obtain an agent arrival probability within said predicted time. The means for combining said first and second probabilities to obtain an agent arrival probability within said predicted time are provided by the agent arrival prediction function 124 of the ACD 104. (Specification, p. 8, ll. 9-12; p. 9, ll. 9-11.)

Means for placing outbound calls, wherein said agent arrival probability is provided as an input to said means for placing outbound calls. The means for placing

outbound calls are provided by the predictive dialer 114 included in the ACD 104. (Specification, p. 7, ll. 1-2.)

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL (37 CFR §41.37(c)(1)(vi))

A. THE REJECTIONS UNDER 35 U.S.C. §101 OF CLAIMS 1-12

1. Dependent Claims 7 and 8 recite patentable subject matter for additional reasons

2. Dependent Claim 13 recites patentable subject matter for additional reasons

3. Dependent Claim 14 recites patentable subject matter for additional reasons

B. THE REJECTIONS UNDER 35 U.S.C. §103 OF CLAIMS 1-16 AND 18-22

C. THE OBJECTION TO CLAIM 2

VII. ARGUMENT

A. REJECTIONS UNDER 35 U.S.C. §101

Claims 1-12 have been finally rejected as being directed to non-statutory subject matter. The threshold eligibility requirements of 35 U.S.C. §101 require that the claimed invention be directed to statutory subject matter and that the invention be useful. In the Final Office Action, the Examiner finds that Claims 1-12 neither transform underlying

subject matter nor positively tie to another statutory category that accomplishes the claim method steps, and therefore do not qualify as a statutory process.

The criteria for determining subject matter eligibility are that 1) the claimed invention is directed to one of the four statutory categories, and 2) the claimed invention is not wholly directed to subject matter encompassing a judicially recognized exception. The first criterion is met if the claim is directed to a process, machine, manufacture, or composition of matter. The second criterion is met if the claim does not wholly embrace a judicially recognized exception to patentable subject matter, such as abstract ideas, mental processes or substantially all practical uses of a law of nature or a natural phenomenon, or is a particular practical application of a judicial exception. (See interim examination instructions for evaluating subject matter eligibility under 35 U.S.C. §101, August 2009).

A patent claim recites patentable subject matter under 35 U.S.C. §101 if the claims recite a particular machine or apparatus or transforms any article into a different state or thing. (*In re Bilski* (Fed. Cir. October 30, 2008).) The invention recited by Claim 1 relates to forecasting availability of a resource. As set forth in the specification, such forecasting is performed by an automatic call distributor defined as a stored program controlled apparatus that operates under the control of a processor that obtains and stores data in, and executes stored programs out of, memory or some other computer readable medium. Moreover, the automatic call distributor interconnects agent positions via calls with the outside world to which it is connected by communications trunks. (See Specification, p. 6, ll. 9-19.) Accordingly, the claimed invention is directly tied to a specific machine. In addition, Applicants note that the examiner declined to enter the amendments presented in the amendment after final filed on May 26, 2009, which sought to specify that the method comprises the execution of program instructions, wherein the program instructions are recorded in a computer readable storage medium in Claim 1 explicitly. Therefore, should the claim in its present form be considered deficient, it is requested that the matter be remanded to include the amendment to place the application in condition for allowance. Therefore, Claims 1-12 recite patentable subject matter, and the rejections on this basis should be reconsidered and withdrawn.

1. Dependent Claims 7 and 8 recite patentable subject matter for additional reasons

Claim 7 specifies steps of computing a probability, variances, and a ratio. To the extent that these steps of computing implicate a computer apparatus, Claim 7 and dependent Claim 8, which specifies still other steps of computing, should be found to recite patentable subject matter for this additional reason. Therefore, Claims 7 and 8 recite patentable subject matter for at least these additional reasons, and the rejections of these claims under 35 U.S.C. §101 should be reconsidered and withdrawn.

2. Dependent Claim 13 recites patentable subject matter for additional reasons

Dependent Claim 13 specifies that the method of Claim 1 comprises the execution of program instructions, wherein said program instructions are recorded in a computer readable storage medium. Accordingly, Claim 13 directly implicates the operation of a machine in executing program instructions. Claim 13 therefore recites patentable subject matter for at least this additional reason. The rejection of Claim 13 under 35 U.S.C. §101 should be reconsidered and withdrawn for this additional reason.

3. Dependent Claim 14 recites patentable subject matter for additional reasons

Dependent Claim 14 specifies that the method of Claim 1 is performed by operation of a logic circuit. Therefore, Claim 14 recites patentable subject matter for at least this additional reason. Accordingly, the rejection of Claim 14 under 35 U.S.C. §101 should be reconsidered and withdrawn.

B. REJECTIONS UNDER 35 U.S.C. §103

The pending claims have been finally rejected as being unpatentable over various references. 35 U.S.C. §103 provides in relevant part:

"A patent may not be obtained though the invention is not identically disclosed or described as set forth in §102 of this title, if the differences between the subject matter sought to be patented in the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains."

"A prima facie case of obviousness is established [by an Examiner] when the teachings from the prior art itself would appear to have suggested the claimed subjected matter to a person of ordinary skill in the art." (*In re Rijckaert,* 28 USPQ2d (BNA) 1955, 1956 (quoting *In re Bell*, 26 USPQ2d (BNA) 1529, 1531 (Fed. Cir. 1993)). In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the art having the reference before him to make the proposed substitution, combination or other modification. (MPEP §2143.01, quoting *In re Linter*, 458 F. 2d 1013, 1016 (CCPA 1972)). "[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusions of obviousness." *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 418, 82 USPQ2d 1385, 1396 (2007).

Claims 1-16 and 18-22 stand rejected under 35 U.S.C. §103 as being unpatentable over U.S. Patent No. 5,640,445 to David in view of U.S. Patent Application Publication No. 2003/0018762 to Mullen.

a) The Claimed Invention

As discussed in detail above, the claimed invention is generally directed to forecasting the future availability of a resource or agent for a new work assignment.

The claimed invention is generally directed to forecasting the future availability of a resource or agent for a new work assignment. More particularly, according to the

claimed invention, the probability of completing a task that can be broken into a number of differentiated segments is determined by separately determining the probabilities of each of the differentiated segments. For example, and without introducing limitations to the broader claims, an agent in a call center may be assigned to complete tasks that can be broken into a first segment during which the agent is speaking with a customer or other party ("talk time") and a second segment during which the agent is performing paper work following an instance of talk time ("wrap-up time"). A probability for each of these segments is then separately calculated. After the separate probabilities of the separate segments included in the task have been calculated, they are combined to obtain a probability related to whether the agent will be available within the forecast horizon. The references cited in the Office Action do not teach, suggest or describe segmenting a task into multiple segments and separately determining the probability that each segment will be completed within a forecast horizon in connection with obtaining an overall probability that a resource will be available within that forecast time horizon as claimed.

More particularly, the claimed invention specifies that a task be considered as at least first and second segments. A first probability related to an availability of a first resource within a forecast horizon is determined for the first segment, and a second probability related to the availability of the first resource within the forecast horizon is determined for the second segment. The first and second probabilities are combined, and the result of the combining can be normalized (*e.g.*, as recited by Claim 1) to obtain a probability of agent availability within the selected forecast horizon. Notably, and as stated above and made explicit in the claims, the segments for which probabilities are calculated are part of the same task. Calculating probabilities for different segments of one task and then combining those separate probabilities to obtain an overall probability of resource availability within the selected time horizon is not taught, suggested or described by the cited references.

b) The David Reference

The David reference is generally directed to an outbound call pacing method that statistically matches the number of calls dialed to the number of available operators. In particular, a weight (*i.e.*, one weight) is assigned to each agent and is a function of how

long an agent has been engaged in a call or an after call work. (David, Abstract.) The sum of the weights assigned to the agents is the predicted number of engaged agents that will become free within a time window. (*Id.*) As noted in the Office Action, the David reference does state that David calculates agent availability based on probability statistics. (See, *e.g.*, David, col. 2, ll. 63-66.) In addition, David discusses the use of one probability density function of the time a call takes from connection to an agent until an agent becomes free, and another probability density function of the elapsed time from when an agent begins after call work until he is free. (David, col. 5, ll. 49-67.) That is, David teaches applying a different probability density function to calculate a measure of whether an agent will become available to take a new call, depending on the task that an agent is engaged in. Accordingly, David discusses calculating an overall probability that an agent will become available by calculating different probabilities for different agents based on the task being performed by those different agents (*e.g.* either in a call or engaged in after call work), and the results for agents involved in the different types of work are summed. However, David does not describe calculating different probabilities for different segments of one task for one agent in order to obtain an agent arrival probability for that agent as claimed. Instead, each agent in David is assigned to either a first or a second class of work, and a probability is calculated for that assigned class. Therefore, because different probabilities for different segments of a task being performed by one agent and combining those separately determined probabilities for that one agent are not taught, suggested or described by David, the rejections of Claims 1-6, 8-17 and 19-23 as anticipated should be reconsidered and withdrawn.

c) The Mullen Reference

The Mullen reference is cited in connection with computing a variance in agent time in different states. Although Mullen discusses variance, there is no disclosure in that reference of calculating for different segments of a task being performed by a resource separate probabilities of completing those segments within a forecast horizon as generally claimed. Accordingly, Mullen does not make up for all of the deficiencies in the David reference, and the rejections of Claims 7 and 18 as obvious should be reconsidered and withdrawn.

d) The David and Mullen References Could Not Be Combined to Arrive at the Claimed Invention

In addition, the David and Mullen could not be combined to arrive at the claimed invention. In particular, there is a complete absence in the cited references of calculating for different segments of a task being performed by a resource separate probabilities of completing those segments within a forecast horizon. Therefore, this critical element of the claimed invention is completely absent from the cited references. Moreover, there is no teaching, suggestion or disclosure in any of the cited references of considering a task as a plurality of segments. Therefore, the proposed combination of references does not teach each and every element of the pending claims.

e) Independent Claim 1 and Dependent Claims 2-14 Are Not Obvious

The invention set forth in independent Claim 1 and dependent Claims 2-14 is generally directed to a method for forecasting availability of a resource for a work assignment. As recited by the claims, the method requires selecting a forecast horizon. In addition, the method includes determining for a first segment of a first task a first probability related to an availability of at least a first resource within the forecast horizon, wherein the first resource comprises a first agent. The method further includes determining for a second segment of the first task a second probability related to the availability of the at least a first resource within the forecast horizon, wherein the first and second probabilities are different from one another. According to the method, the determined first probability and the determined second probability are combined, and the result is normalized to obtain a probability of agent availability within the selected forecast horizon. The obtained probability is then applied to assign work to a resource having a probability of agent availability that is within the selected forecast horizon.

A method in which first and second probabilities are determined for first and second segments of a task is not taught, suggested or described by the cited references. Instead, the David reference calculates an overall probability that agents will become available. David does not disclose calculating different probabilities for different tasks of

an agent. The Mullen reference also does not disclose calculating for different segments of a task separate probabilities. Moreover, the complete absence of considering tasks as a plurality of segments, and of determining probabilities for each of those segments in the prior art, the proposed combination of references would not result in the claimed invention. Therefore, Claims 1-14 are not obvious, and should be allowed.

f) Independent Claim 15 and Dependent Claims 16 and 18 Are Not Obvious

The invention set forth in independent Claim 15 and dependent Claims 16 and 18 is generally directed to a method for forecasting arrivals of agents. More specifically, the method includes selecting a forecast horizon. The method further includes forecasting using an automatic call distributor the number of agents associated with the automatic call distributor that are available within the selected horizon. This step of forecasting includes determining a probability of completion of talk state within the forecast horizon for each of a plurality of agents, determining a probability of completion of wrap-up state within the forecast horizon for each of the plurality of agents assuming each is at the start of wrap-up, combining the determined probability of completion of talk state and the determined probability of completion of wrap-up state to obtain an agent arrival probability for each of the plurality of agents within the forecast horizon, combining the agent arrival probabilities for each of the plurality of agents to obtain a first forecast, and initiating an outbound call when the first forecast indicates an excess supply of agents.

As previously noted, neither of the cited references separately determining for different segments of a task probabilities of completion within a forecast horizon. Moreover, the cited references do not disclose determining a probability of completion of a talk state for an agent, and determining a probability of completion of a wrap-up state for that agent, much less combining those different probabilities for the agent to obtain an agent arrival of probability within the forecast horizon. Therefore, for at least these reasons, Claims 15, 16 and 18 are not obvious, and the rejections on these grounds should be withdrawn.

g) Independent Claim 20 and Dependent Claims 21 and 22 Are Not Obvious

The invention set forth in independent Claim 20 and dependent Claims 21 and 22 is generally directed to a work distribution system. The system includes means for predicting a time to a next work item requiring an agent, means for accessing a first agent work segment statistic, an means for accessing a second agent work segment statistic. The system further includes means for determining a first probability of completing the first agent work segment within the predicted time at an elapsed time in the second work segment by applying at least the second agent work segment statistic. In addition, the system includes means for combining the first and second probabilities to obtain an agent arrival probability within the predicted time, and means for placing outbound calls, wherein the agent arrival probability is provided as an input to the means for placing outbound calls.

Neither the David nor the Mullen reference discloses a work distribution system in which a first probability of completing a first agent work segment within a predicted time and determining a second probability of completing a second agent work segment within the predicted time are disclosed. Instead, the David reference calculates one overall probability. The Mullen reference also does not disclose calculating different probabilities for different segments. Accordingly, the rejections of Claims 20-22 as obvious should be withdrawn.

C. THE OBJECTION TO CLAIM 2

Claim 2 stands objected to on the grounds that a recited term lacks antecedent basis. Initially, Applicants note that correction of this minor error was presented in the Amendment After Final filed on May 26, 2009. However, the Examiner declined to enter the Amendment, even for purposes of Appeal. Given that this objection relates to an informality that is in the nature of an obvious typographical error, the objection to Claim 2 should not pose an issue that delays otherwise allowing the claim. In particular, the required correction can easily and appropriately be entered in further proceedings.

Based upon the foregoing, Appellant respectfully requests that the Board reverse the Examiner's rejections of pending Claims 1-16 and 18-22, and the objection to Claim 2, and requests that the board pass the above-identified patent application to issuance.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

1. A method for forecasting availability of a resource for a work assignment, comprising:

selecting a forecast horizon;

determining for a first segment of a first task a first probability related to an availability of at least a first resource within said forecast horizon, wherein said first resource comprises a first agent;

determining for a second segment of said first task a second probability related to said availability of said at least a first resource within said forecast horizon, wherein said first and second probabilities are different from one another;

combining said determined first probability and said determined second probability;

normalizing a result of said combining said determined first and second probabilities to obtain a probability of agent availability within said selected forecast horizon; and

applying said obtained probability of agent availability to assign work to a resource having a probability of agent availability that is within said selected forecast horizon.

2. The method of Claim 1, wherein said first resource comprises a first agent, wherein said first probability comprises a probability that said first agent will complete a talk state within said selected horizon, said first probability derived from a time said agent has been in said talk state and a probability distribution for agent time in said talk state,

and wherein said second probability comprises a probability that said first agent will complete a wrap-up state within said selected time horizon, said second probability derived from a probability distribution for agent time in said wrap-up state.

3. The method of Claim 2, wherein said first probability is determined for an actual time said at least said first agent has been in said talk state, and wherein said second probability is determined for zero time in said wrap-up state.

4. The method of Claim 1, wherein said first probability comprises a combination of a probability that said first agent will complete a talk state within said selected forecast horizon and a probability that said first agent will complete a wrap-up state within said selected forecast horizon, and wherein said second probability comprises a probability that said first agent will complete a total handle time state within said selected forecast horizon.

5. The method of Claim 1, wherein said combining comprises adding said first and second probabilities.

6. The method of Claim 1, wherein said combining comprises calculating a product of said determined first probability and said determined second probability, and wherein said normalizing comprises dividing said product by two.

7. The method of Claim 2, further comprising:

computing a third probability, said third probability comprising a probability that said first agent will arrive within said selected horizon, said probability derived from a time said agent has already spent handling said task and a probability distribution for total agent handle time, wherein said third probability comprises a second forecast;

computing a first variance in agent time in talk state;

computing a second variance in agent time in wrap-up state;

computing a third variance in total agent handle time; and

computing a first ratio, said first ratio comprising a ratio of the third variance to the sum of the first, second and third variances, wherein a measure of the predictability of using talk and wrap-up time statistics relative to using total handle time statistics is obtained.

8. The method of Claim 7, further comprising:

determining an a priori probability of completion of said talk state before an amount of time equal to an amount of time said first agent has been in said talk state has elapsed;

computing a product of said a priori probability and said first ratio to obtain a first weight;

computing a product of said first weight and said first forecast to obtain a first weighted forecast;

subtracting said first weight from one to obtain a second weight;

computing a product of said second weight and said second forecast to obtain a second weighted forecast; and

computing a composite forecast by computing a sum of said first weighted forecast and said second weighted forecast.

9. The method of Claim 1, wherein a probability of arrival is calculated for a plurality of resources.

10. The method of Claim 9, wherein said probabilities of arrival for each of said plurality of resources are combined to obtain said first forecast.

11. The method of Claim 1, wherein said selected forecast horizon comprises a forecast time until an outbound call is completed to a live person.

12. The method of Claim 1, further comprising using said first forecast to determine whether or not to place an outgoing call.

13. The method of Claim 1, wherein said method comprises the execution of program instructions, wherein said program instructions are recorded in a computer readable storage medium.

14. The method of Claim 1, wherein said method is performed by operation of a logic circuit.

15. A method for forecasting arrivals of agents, comprising:

selecting a forecast horizon;

forecasting using an automatic call distributor the number of agents associated with the automatic call distributor that are available within said selected horizon, said forecasting including:

determining a probability of completion of talk state within the forecast horizon for each of a plurality of agents;

determining a probability of completion of wrap-up state within the forecast horizon for each of said plurality of agents assuming each is at the start of wrap-up;

for each of said plurality of agents, combining said determined probability of completion of talk state and said determined probability of completion of wrap-up state to obtain an agent arrival probability for each of said plurality of agents within said forecast horizon;

combining said agent arrival probabilities for each of said plurality of agents to obtain a first forecast; and

initiating an outbound call when said first forecast indicates an excess supply of agents.

16. The method of Claim 15, wherein said combining said agent arrival probabilities for each of said plurality of agents to obtain a first forecast comprises:

aggregating a supply of agents as a sum of probabilities of arrival of each individual agent included in said supply of agents.

17. (Canceled.)

18. The method of Claim 15, wherein said forecast horizon is selected from one of a time corresponding to said predicted time to a live disposition on outbound calls, an amount of time an agent is predicted to be occupied by work having a lower priority than a priority of work comprising servicing an outbound call, and an amount of time

required to recall an agent from lower priority work to work comprising servicing an outbound call.

19. The method of Claim 14, wherein said first forecast is provided as an input to a predictive dialer.

20. A work distribution system, comprising:

means for predicting a time to a next work item requiring an agent;

means for accessing a first agent work segment statistic;

means for accessing a second agent work segment statistic;

means for determining a first probability of completing said first agent work segment within said predicted time at an elapsed time in said first work segment by applying at least said first agent work segment statistic;

means for determining a second probability of completing said second agent work segment within said predicted time at zero elapsed time in said second work segment by applying at least said second agent work segment statistic;

means for combining said first and second probabilities to obtain an agent arrival probability within said predicted time; and

means for placing outbound calls, wherein said agent arrival probability is provided as an input to said means for placing outbound calls.

21. (Original) The system of Claim 20, further comprising means for combining agent arrival probabilities for each of a plurality of agents to obtain said agent arrival probability within said predicted time.

22. (Original) The system of Claim 20, further comprising:

means for accessing a third agent work segment statistic, said third agent work segment spanning said first and second work segments; and

means for determining a third probability of completing said third agent work segment within said predicted time at an elapsed time in said third work segment,

wherein said means for combining comprises means for combining said first, second and third probabilities to obtain an agent arrival probability within said predicted time.

23. (Canceled.)

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.